

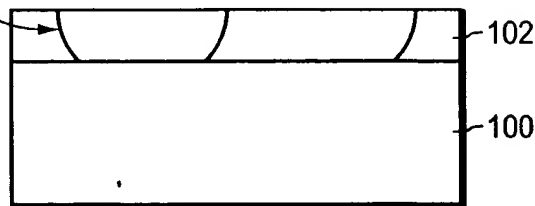
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THREADING
DISLOCATION

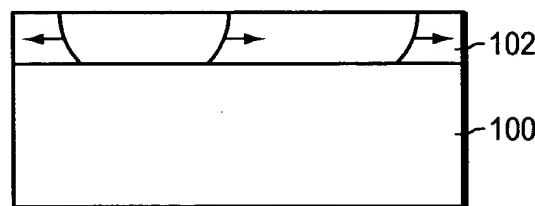
FIG. 1A



1. DEPOSIT LATTICE MISMATCHED
LAYER AT LOW T



FIG. 1B

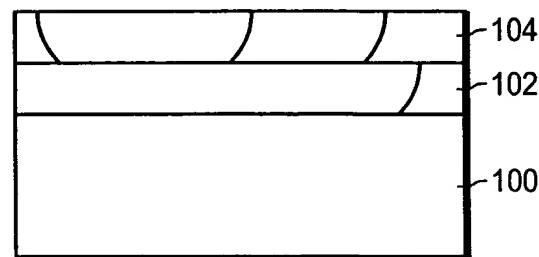


2. ANNEAL AT HIGH T TO INCREASE
DISLOCATION FLOW AND REDUCE
DISLOCATION DENSITY



4. REPEAT ANNEAL AND
DEPOSITION UNTIL DESIRED
STRUCTURE IS ACHIEVED

FIG. 1C



3. DEPOSIT SUBSEQUENT LAYER
WITH INCREASED LATTICE
MISMATCHED AT LOW T

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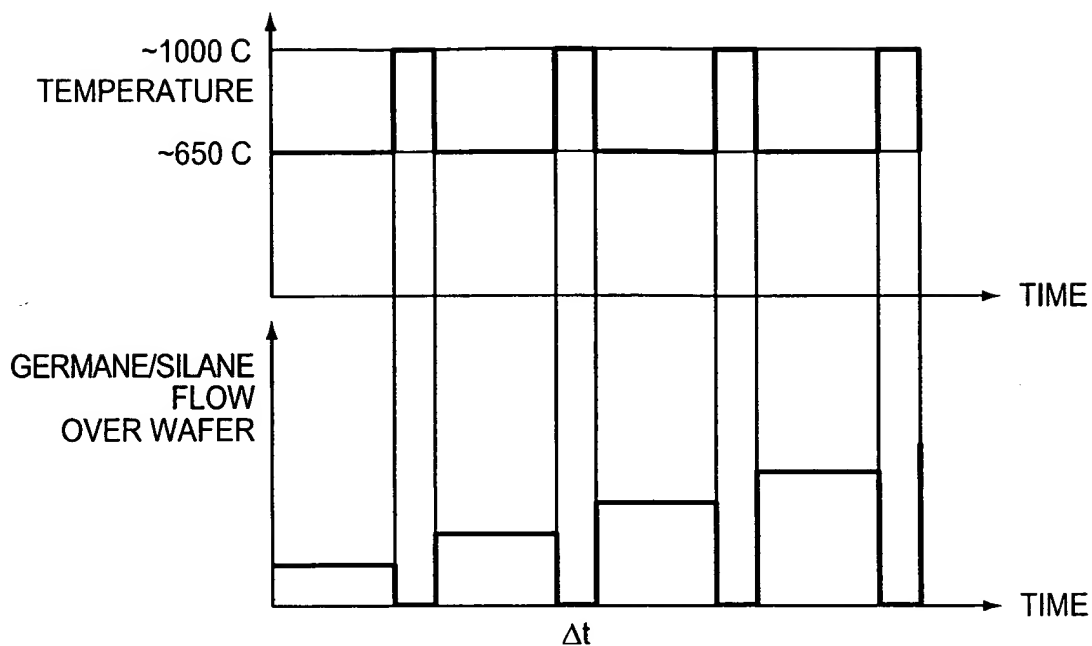


FIG. 2

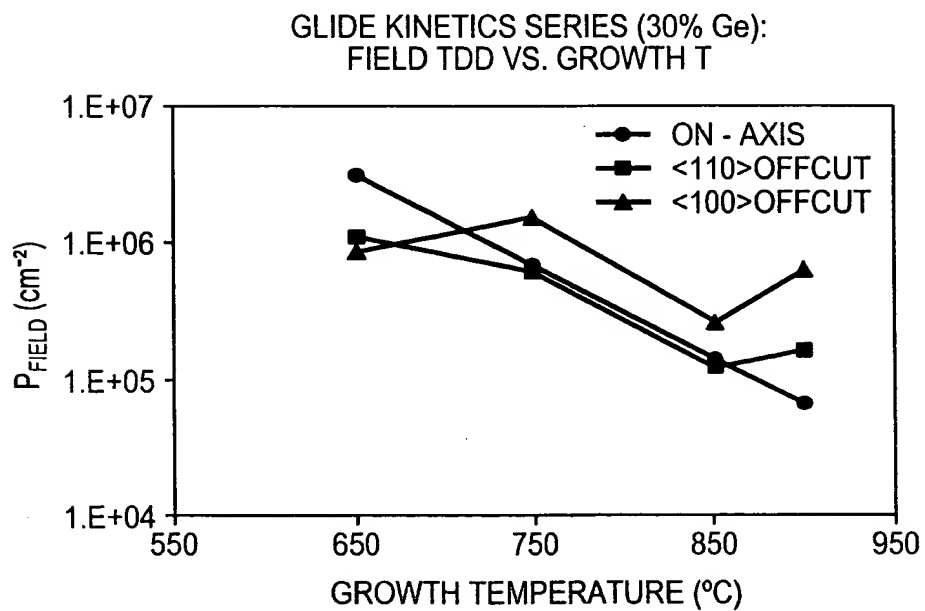


FIG. 3

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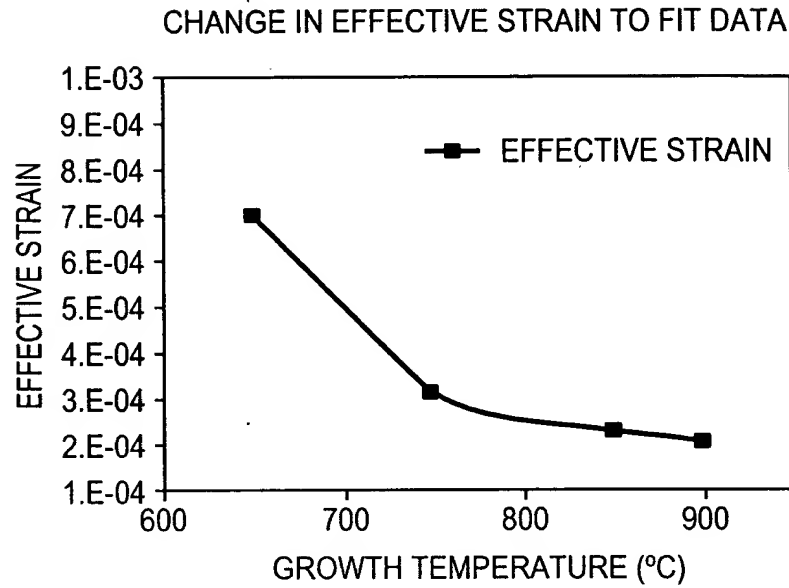
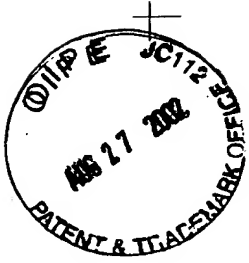


FIG. 4

SAMPLE	TOTAL THREADING DISLOCATION DENSITY (# / cm ²)	FIELD THREADING DISLOCATION DENSITY (# / cm ²)
20% SiGe ON Si WITH GRADED BUFFER AS GROWN	1.36 x 10 ⁶	1.31 x 10 ⁶
20% SiGe ON Si WITH GRADED BUFFER AFTER A 5 MIN ANNEAL AT 1050 °C	7.25 x 10 ⁵	5.48 x 10 ⁵

FIG. 5

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